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ABSTRACT

This paper, the first in a series of discussion papers for faculty members and administrators, contends that outdated structures, practices, and reward systems frustrate higher education's ability to reap the benefits of new directions in student learning. It finds that broad agreement is emerging on what students ought to learn from their baccalaureate studies, with a trend toward modes of learning that are collaborative, experiential, service, and integrative. Part 1 identifies and discusses major themes in campus-based educational change. It sees an emerging conceptualization of liberal learning with such learning goals as acquisition of intellectual skills, understanding of multiple modes of inquiry, and development of societal, civic, and global knowledge. The concomitant developing pedagogy and curriculum includes collaborative inquiry, experiential learning, service learning, research or inquiry-based learning, and integrative learning. Part 2 identifies well-entrenched practices and structures that work against learning quality, including disciplinarity as a sufficient framework for advanced learning, the distinction between general education and the major, the system of courses and credits, credit transfer practices, the undefined baccalaureate degree, and the faculty-reward question. The final section proposes ways of rethinking and reframing the educational architecture of the undergraduate experience. These focus on connecting educational goals and institutional practices, and developing a new curricular architecture. (Contains 17 reference notes.) (DB)

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Contemporary Understandings of Liberal EDUCATION

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About the Series

THIS PAPER IS THE FIRST in a new series exploring "The Academy in Transition." Framed as a stimulus to campus discussion, the paper maps national trends in educational reform and examines their implications for the content and organization of higher learning.

The Association of American Colleges and Universities encourages faculty members and academic leaders to use these pages as a point of departure for their own analysis of the direction of educational change. We hope the arguments presented here will inspire faculty members and academic leaders to think broadly and creatively about the educational communities we inherit—and about the educational communities we want to create.

Acknowledgments

THE IDEA FOR THIS SERIES OF DISCUSSION PAPERS on "The Academy in Transition" came from participants in the strategic planning process recently undertaken by the Association of American Colleges and Universities (AAC&U). The authors are grateful to the AAC&U Board of Directors, to dozens of campus leaders and faculty members and to AAC&U's own staff members who contributed substantially both to the strategic planning and to the decision to develop this series. We especially want to thank Paula P. Brownlee, who, prior to her retirement in January 1998, made the planning of this series one of her central priorities. Publication of this paper has been supported by a fund established to advance AAC&U's strategic plan.

While the views expressed in this paper are the authors' own, they emerge from observation of literally hundreds of campus-wide and departmentally based efforts to improve the quality of college learning. We have been heartened and inspired by the educational creativity and commitment that we encounter throughout higher education, in every part of the country and on every kind of campus. We salute those who work, largely unheralded, to make the benefits of a challenging liberal education more fully available to an ever wider portion of the United States population.

Many people read earlier drafts of this paper and made suggestions for its improvement. We thank in particular Paula Brownlee, President of AAC&U, Brit Kirwan, President of the University of Maryland at College Park and 1998 Chair of the AAC&U Board of Directors, and the following AAC&U colleagues: Jerry Gaff, Vice President and Director of the Network for Academic Renewal, Debra Humphreys, Assistant Director of Programs, Joseph Johnston, Vice President for Programs, Bridget Puzon, Academic Editor of *Liberal Education*, and Joann Stevens, Vice President for Communications. We also thank Laura Blasi and Daniel Doraisingh for their work in preparing the text for publication.

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Contemporary Understandings of Liberal Education: The Academy in Transition

IT IS NO SECRET that American higher education is in a period of transformative change. More than at any other time in the memory of the senior members of the academy, colleges and universities seem bent on finding and learning new ways of doing their work. Motivated by a familiar list of external forces ranging from public questioning of their priorities to financing to technology, institutional leaders are scrambling to rethink their methods while remaining true to their purposes. The shift from a teaching to a learning paradigm of instruction, the incorporation of information technology and all it makes possible into the fabric of the institution, the increasing engagement with the local and global community, the new awareness of an assertive and rapidly expanding for-profit higher education sector and the reconsideration of such issues as tenure collectively exemplify the quite profound transformations now in process. We are indeed in the midst of a time of great change.

These changes do not affect all institutions and all individuals in the same way. Public institutions experience them differently from private ones, liberal arts colleges differently from research universities, community colleges differently from baccalaureate institutions, selective institutions differently from those with open admissions. Similarly, teachers across the forty-year age span of most faculties exhibit generational differences in their sense of the desirability and urgency of change, differences influenced by their academic training, their expectations when they decided on a life in academe, and their career experiences. The much-admired diversity of American higher education is here reflected in a multitude of different responses to a world changing in ways both clear and unforeseeable.

A time of stabilization within a new, widely acknowledged general pattern may come, but we have not yet reached that point of equilibrium. Indeed, the world of higher education has only recently reached a broadly shared understanding that it *is* in a transformational period.

This experience of dislocation is intensified by dawning campus recognition that public perceptions of higher education are frequently discordant with the academy's own sense of fundamental missions. Public criticism of such matters as higher education pricing policies, credit transfer practices, and the ways in which faculty spend their time is often incongruent with campus leaders' perceptions of their institutional commitments and responsibilities. The widespread student, parent and general public assumption that higher education is and should be primarily vocational collides with faculty members' insistence that intellectual development, preparation for citizenship and moral growth are at the least an equally important part of their educational purposes. This same public orientation also manifests itself in pervasive devaluation of research missions and endeavors. With rare exception, members of the public and higher education leaders, while sharing a well-founded faith in the *value* of education, have not found a way of mediating their quite different understandings of what that value is or should be.

Public perceptions of higher education are frequently discordant with the academy's own sense of fundamental missions.

A recent cartoon shows a herd of steers dashing chaotically over the plains, each headed in a somewhat different direction. One of the steers complains to another, "I hate badly organized stampedes." And that is what the current circumstances of higher education can feel like: a badly organized stampede.

Yet for all the sense of dislocation and disruption, there are emerging understandings and practices that can point the academy in a definable and educationally productive direction. For more than a decade, a growing number of colleges and universities have been engaged in an important, but largely unremarked, reexamination of their educational purposes and practices. Much of this rethinking has taken the form of extensive changes in general education programs and graduation requirements. Some of it emerges from campus-wide restructuring of major programs and the development of new fields and related programs of study. A further spur to educational change has been the widespread focus on student diversity and a deepening campus engagement with effective ways of supporting student persistence and achievement. Assessment mandates also have contributed to reconsideration of the goals and efficacy of baccalaureate learning.

Taken together, the themes emerging across hundreds of campuses and thousands of separate educational reforms express a renewed and contemporary understanding of the kinds of learning students need to negotiate a rapidly transforming world. Our purpose in this paper is to illuminate this emerging understanding and propose ways of developing its full educational potential for the academy in transition.

The first part of this paper draws primarily on the Association of American Colleges and Universities' extensive involvement over the past decade with several hundred campus-based teaching and learning initiatives.[1] Here we point to major themes in campus-based educational change—themes that collectively define a new intentionality about what and how students learn. In the middle section of the paper, we turn our attention to well-entrenched practices and structures that, in the authors' judgment, largely work *against* the quality of learning new campus initiatives seek to effect. This part of the paper, evaluative rather than empirical, suggests habits the academy will need to break before it can fully realize a viable and sustainable direction for undergraduate learning in the decades ahead. In the final section of the paper, we propose ways of rethinking and reframing the educational architecture of the undergraduate experience that take account of the educational innovations and aspirations increasingly visible throughout higher education.

Part I: Teaching and Learning in Transition

SINCE TEACHING AND LEARNING ARE AT THE HEART of the academic enterprise, we begin our discussion there. Curriculum and instruction have been for more than a decade the major locus of contention about the educational purpose and practice of colleges and universities, both intramurally and extramurally. The issues range from the "culture wars" to the purposes and values of the liberal arts, from the degree of concern for the quality of student learning to the assessment of learning outcomes, from the role of electronic technology in instruction to the value of bringing students into direct engagement with neighboring and global communities.

In both anticipating and responding to these challenges, college and university faculty members have tried much that is genuinely new, or newly emphasized and freshly conceived. The computer has wrought enormous changes in the way faculty teach (not to mention how they carry on their research), in how they interact with students, and even in the constituencies they now reach. If nothing else new were happening, information technology would by itself revolutionize the academy. In particular, it has fueled a profound change in thinking about instruction from teacher-centered to learner-centered education.[1]

But much else has been introduced and become significant in shaping new directions: curricular, particularly general education models that are conceived in terms of development of intellectual skills as opposed to encountering particular subject matter; new emphases on engaging the diversity of human communities and global cultures; the radiation of experiential learning and its close congener, service learning; cooperative and collaborative learning; interdisciplinarity; topically linked courses or "learning communities"; undergraduate research; discovery approaches to science, just to name a few.[2] New and insistent demands from the public and from accrediting agencies that institutions clarify and specify their goals and demonstrate their achievement of them are in turn having an increasingly visible, if still uneven, effect on educational practice.

AN EMERGING CONCEPTUALIZATION OF LIBERAL LEARNING

From this wealth of new programs and practices, a pattern is emerging that shows promise of providing a conceptual framework for undergraduate learning which is both contemporary and within the traditions of the academy. This conceptualization responds to the reality of a changing and knowledge-intensive society. But it also draws directly on those traditions of excellence the academy has long described as "liberal learning," ways of approaching knowledge that expand imaginative horizons, develop intellectual powers and judgment, and instill in students the capacity and resolve to exercise leadership and responsibility in multiple spheres of life, both societal and vocational.[7] This conceptualization further includes new ways of talking about the content of a liberal education and new approaches to teaching and learning. Indeed, the language many campuses are using to describe the content of a contemporary liberal education implies the necessity for *emphasizing* some learning strategies and *reducing* the prevalence of others.

A pattern is emerging that responds to the reality of a changing and knowledge-intensive society.

Although each institution organizes its educational program in its own way, the following seems a fair description of the *learning goals* implicit in contemporary campus efforts to reconceive both their degree requirements and their undergraduate curricula:

1. **Acquiring intellectual skills or capacities.** Almost universally, institutions include writing and quantitative reasoning in their requirements. Achievement of a certain level of proficiency in oral expression, computer use and a second language are often expected. In more and more colleges and universities, students are also expected to develop skill in moral reasoning and negotiating difference.

2. **Understanding multiple modes of inquiry and approaches to knowledge.** This is the emergent way of talking about the "distribution requirements" that for much of the twentieth century dominated—and in many institutions still do dominate—general education programs. The commonly encountered requirement that students have some exposure to the knowledge content of the sciences, social sciences, humanities and (less frequently) the arts is being re-justified in epistemological terms. Imparting a sense of the analytic modes of these broad areas of intellectual endeavor forms the rationale for "distribution," and the way in which courses that meet these requirements are taught is being adjusted accordingly. This impetus informs contemporary curricular innovations in science, where "workshop," "studio," and other hands-on approaches are being widely introduced.

3. **Developing societal, civic, and global knowledge.** Traditionally, history and "Western Civilization" requirements have been based on the premise that educated people should know something about societies and events remote in time, but which help to explain contemporary society. The academy is now adding the further expectation that students will learn about cultures separated from the dominant culture by distance and/or by assumptions, experiences, or differential social power. With rapidly increasing frequency, general education requirements include study of a non-European culture and of contemporary cultural diversity (i.e., gender, race, ethnicity, sexual orientation, etc.) and justice issues, both in the United States and abroad. Many campuses promote service learning programs explicitly designed to involve students with challenging societal issues. Through projects to increase student study abroad, colleges and universities are developing more accessible and more diverse ways to support global knowledge and cross-cultural competence.

4. **Gaining self-knowledge and grounded values.** This learning goal is seldom manifested in specific degree requirements but underlies, as implicitly it always has, undergraduate education in general and the general education curriculum in particular. Good teaching, now as ever, tries to help students place and define themselves within their particular cultures and the broader society and to do so within expanding frameworks of knowledge, self-awareness, and increased capacity for reflective judgment. New courses and programs frequently invite students to reflect on their own sources of identity and values and to engage with challenging ethical, moral, and human dilemmas. Fostering social and civic responsibility is an avowed goal of many new curricula. New self-consciousness about heterogeneity on campus and in society is accelerating many of these trends toward clarifying and exploring value choices and positions.

5. **Concentration and integration of learning.** With rare exception, students are expected to spend anywhere from a quarter to three-quarters of their academic time developing working knowledge and demonstrable skills in a particular field of inquiry and/or practice. The academic major remains the focus of undergraduate education, the curricular element by which students most often and readily define themselves within the institution and through which they explore life and vocational choices and possibilities. Increasingly, however, the boundaries between general education and the major are becoming blurred. Some institutions are acting on their realization that the broad and ambitious goals of general education cannot be

met within a small set of discrete courses and are asking both the majors and the co-curriculum to take on some of those responsibilities. At many other institutions, upper level integrative general education courses are taught in ways that intersect and enrich the advanced learning in the major. The rapid growth of interdisciplinary majors and minors accelerates this integrative trend.

A CONCOMITANT PEDAGOGY AND CURRICULUM

The dominant mode for achieving these learning goals remains lecture and small(er) group discussion, as it has for the last century. Belief in instructor personality, in the professor's ability to induce student commitment to the intellectual content of the course and in his or her skill as an explicator and motivator still governs our practice. But presentational teaching as the quintessential activity of the college professor is retreating before a growing emphasis on the centrality of the student as learner.[1] In this newer conception, the instructor's role as motivator remains fundamental, but now as a mentor in acquiring strategies for learning. As the familiar formulation puts it, the professor is no longer primarily "the sage on the stage," but assumes a new and crucial role as "the guide on the side."

Presentational teaching as the quintessential activity of the college professor is retreating before a growing emphasis on the centrality of the student as learner.

This emerging understanding of the multiple purposes of collegiate instruction is both accompanied and advanced by a raft of increasingly emphasized or newly developed ways of learning. Computer technology, with its capacities for calculation, simulation, and facilitating communication both in real time and at the convenience of the correspondents, has changed teaching forever. Providing new forms of learning and new access to information, information technology is forcefully challenging the model of a single knowledgeable person talking to, or controlling interaction among, a group of people assembled in one place at the same time. New instructional technologies facilitate one-on-one interaction and allow students to do much more on their own, individually, or in groups, with professor-created, problem-focused, often computer-mediated materials to provide guidance and correction.

None of these developments invalidates the importance of the instructor's greater knowledge and wisdom as a powerful resource for students' learning. Nor do they eliminate the significance of the group setting as a stimulus to intellectual development and understanding. Rather, these key elements in the learning process are being reconfigured through an increasing emphasis on involving students earlier and more frequently in hands-on, inquiry-oriented strategies for learning:

1. **Collaborative inquiry:** learning and problem-solving in group settings, both direct and on-line. Students work as a team, both in the classroom and outside it, with the instructor as coach.

2. **Experiential learning:** direct experience in field settings, with open-ended problems, projects and challenges. The instructor helps the students, either individually or as a group, learn to process their experience, put it in a context of general principle—practical, intellectual and ethical—and rethink theories in light of the field experience.

3. **Service learning:** direct experiences with societal issues and with groups seeking to solve problems and improve the quality of life for themselves and others. Again, the instructor's role is to provide social, moral and technical context and to help students generalize from the particular, connect scholarship with practice, and discover grounds for commitment and action.

4. **Research or inquiry-based learning:** helping students develop competence in achieving the ultimate purpose of collegiate education: organizing and dealing with unstructured problems. Often making use of educational technologies, students experience the excitement and the usefulness of creating new knowledge. The instructor serves as guide and mentor, but in many cases is not the expert. This role is shifted to the student.

5. **Integrative learning:** generating links among previously unconnected issues, approaches, sources of knowledge, and/or contexts for practice. Such learning is often multidisciplinary. Increasingly, it occurs in the context of learning communities or thematically linked courses. The instructor serves as exemplar of the person whose role is to find fresh and instructive connections, helping students learn how to test the intellectual and practical usefulness—the explanatory power—of the connections they find. Faculty members teaching linked courses work together to design curricular frameworks and materials that facilitate integrative inquiry and learning.

If we bracket for a moment the transformative power of the new technologies, none of these pedagogies is absolutely new. Some of them draw from the well-established model of the laboratory scientist working in close partnership with apprentice learners. Others have for decades been pedagogies of choice at campuses with high intellectual standards and low student-faculty ratios. What is arresting, rather, is the new emphasis, visible at every kind of institution, on extending to a broad array of students the modes of mentored, engaged, and problem-focused

learning that were once reserved for an elite. Equally arresting is the increasing use of educational technologies to frame and reinforce inquiry-based and often collaborative strategies for learning.

The new pedagogical emphases provide a particularly strong match for the emerging curriculum's thrust toward interconnection and relationship. Faculty members are actively encouraging students to develop operational knowledge of their learning, experiences, and aspirations as they stand in juxtaposition with other knowers. The capacity to engage other knowers is implicitly defined in such curricular themes as communication, epistemologies, cultures, historical time, place, values, and the development of collaborative expertise. Taken together, both the contemporary goals for student learning described above and these pedagogies of engagement express faculty members' expectation that students will emerge from their educational experience with what Elizabeth Minnich has termed "liberal arts of translation," that is, the abilities, commitments, and knowledge required to move productively among diverse subjects, contexts, communities, cultures, and nations.[5]

The newly emphasized learning modes encourage students to develop capacities to deal with challenging differences.

The newly emphasized learning modes encourage students to develop capacities to deal with challenging differences. The ability to negotiate multiple forms of diversity is fostered through:

- collaborative work in which students gain an appreciation for the differing and complementary strengths that diverse individuals bring to a group;
- multidisciplinary and integrative learning designed to create an awareness of relationships, tensions, and complementarities among ideas and epistemologies;
- experiential learning and service learning that create a lively sense of students' own life experiences and those of others;
- international study and foreign language learning whose resurgence in new forms and with new methods responds to increasingly urgent needs to communicate across cultures;
- collaborative projects in which students work in diverse teams to frame, address, and propose solutions to significant problems.

We might characterize this emerging reconceptualization of curriculum and pedagogy as a movement toward "relational learning." Faculties, like the society as a whole, have been called to awareness of societal diversities by insistent voices both within and outside the academy. They are struggling to deal responsibly with the intellectual, social, and political implications of this

newly acknowledged societal pluralism, both at home and abroad. Colleges and universities are bringing these concerns into the curriculum not simply in terms of individual course content, but in the ways they conceptualize the purposes of education and the pedagogical strategies they employ.

Fifty years ago the Harvard "Red Book" posited a curriculum focused on a unified national culture based in Western thought. By contrast, the emerging curriculum assumes a world society characterized by a multitude of life experiences and informed by complex intersections among historical experiences, gender, race, ethnicity, socioeconomic status, sexual orientation, religious values, political assumptions, cultural styles, and so on. The liberally educated person, many now argue, needs not only substantial knowledge but also the skills and awareness to negotiate what philosopher Maxine Greene has called "a world lived in common with others."

Thus colleges and universities must educate not in terms of mind alone but also in terms of a life lived in relationships with others whose experiences and assumptions may be very different. Faculties are therefore beginning to pay increased attention to the "civic arts" that lead to an understanding of diversity and to skill in negotiating difficult differences and building communities that respect and acknowledge difference. They are more insistently involving students in an engagement with diversity and equity issues both at home and abroad and in learning experiences that help students develop these capacities and understandings in morally honest and dialogical ways.

Part II: Habits Hard to Break

THE EMERGING MODEL for a contemporary liberal education takes account of the kind of world students inherit and of the knowledge and skills they need to negotiate it. At least potentially, it offers a way of mediating the public's demand for a practical education with the academy's best traditions of fostering students' intellectual, moral, and civic development. By making clear not only what learning campuses value, but *why* this learning is powerful, it strengthens the academy in asserting meaningful standards for educational excellence.

Realizing the full benefit of this emerging framework for a contemporary liberal education will require, however, that colleges and universities reconceive and redesign some persistent features, both structural and organizational, of the educational model that has evolved over the past century. Designed for an earlier era, fostering educational compartmentalization rather than integration, these features of the educational environment work silently, but powerfully, to frustrate the very educational reforms many campuses are now working to achieve. We discuss in the next section some of the most formidable obstacles to realizing the full educational benefit of the new focus on integrative and practice-oriented college learning.

DISCIPLINARITY AS A SUFFICIENT FRAMEWORK FOR ADVANCED LEARNING

The twentieth century educational model is ostensibly—indeed originally was—built on a conceptualization of the structure of knowledge organized by "disciplines." Each of these disciplines was represented by an academic department, with the departments in arts and sciences fields being organized into colleges according to some rough principles of common subject matters and epistemologies.

If "department" and "discipline" ever were synonymous in the ways the model implies, they certainly are no longer so. The degree to which a discipline represents a paradigmatic structure of knowledge that provides, in and of itself, a viable organizational principle for undergraduate learning is called into question by the increasing "interdisciplinarity" of both student interests

and faculty behaviors, not only in their teaching but in their research as well. The scholarly concerns of individual faculty members within almost any academic department encompass a wide diversity of topics and methodologies, often those primarily associated with other disciplines. One anthropologist may be studying evidence derived from analysis of tooth enamel in different cultures; another working in the same department may be producing a history of ideas about race and biology. One economist may be studying principles of supply and demand as they affect all markets even as a colleague pursues a comparative cultural analysis of family economic decision making.

Above and beyond the migration of scholarly topics and approaches from one discipline to another, new and avowedly interdisciplinary programs and fields are springing up everywhere. In the arresting image of the historian John Higham, the contemporary academy is like "a house in which the inhabitants are looking out of the many open windows gaily chatting with the neighbors, while the doors between the rooms stay closed."[10] Yet even as scholarship reconfigures knowledge in increasingly intersecting and polycentric designs, students who select arts and sciences fields are still oriented not only to the rhetoric of "the discipline" but to an operational assumption that they have no need or responsibility to integrate their most significant learning *across* multiple domains of inquiry and practice.

To enter into a discussion of what constitutes a discipline—i.e., a distinctive mode of inquiry, as opposed to a subject matter or a community of scholars with overlapping interests—would lead this discussion too far afield. The point to be made here is that the rhetoric and curricular organization associated with inherited concepts of "the discipline" invite students to think of themselves as pursuing a specific and well-defined competence when the entire ethos of the contemporary world calls for the capacity to cross boundaries, explore connections, move in uncharted directions. This conception of advanced study is deeply problematic when it allows a student to burrow only into one corner of, say, literature or political science, rather than exploring the field's complex byways and neighboring communities. It is equally problematic for the two-thirds of American undergraduates who choose preprofessional fields. Students studying preprofessional subjects are too seldom invited to *connect* their vocational studies with larger societal, cultural, historical, or ethical questions. Why ask of the accounting major (a preprofessional field) what is not asked of the biology major (a discipline)? The result, as Ernest Boyer observed a decade ago, is all too often a neglect of the social and ethical responsibilities inherent in the work of any field:

> [I]n many fields, skills have become ends. Scholars are busy sorting, counting, and decoding. We are turning out technicians. But the crisis of our time relates not to technical competence, but to a loss of social and historical perspective, to the disastrous divorce of competence from conscience. . . .And the values professionals bring to their work are every bit as crucial as the particularities of the work itself.[11]

Lee S. Shulman, Boyer's successor at the Carnegie Foundation for the Advancement of Teaching has taken on the same issue. Shulman argues that all fields, disciplinary as well as professional, ought to be guided by an ethic of social obligation and service and that espousing such an ethic would revitalize the basic conception of a liberal education.[12]

All fields, disciplinary as well as professional, ought to be guided by an ethic of social obligation and service.

This critique of inherited disciplinary assumptions and practices does not negate the collegial and educational importance of departments. Both faculty and students are sustained by structures that provide small communities of common interest, intellectual "homes" for learning, mentoring, and the give and take of collaborative exploration. Experience and research alike attest to the importance of close relationships between students and faculty in fostering students' intellectual growth and educational attainment.[13] Something like departments seems a necessity in any complex institution.

What is called into question is the equation of the department with unitary and self-contained courses of study, segregated by catalog design and powerful traditions from all the other parts of student learning. There is no inherent reason why the learning fostered in a departmental community need be narrowly bounded. Many of the newer fields, such as environmental studies, women's studies, or policy studies, not only model but *require* a problem-centered, multidisciplinary and integrative approach to learning. The challenge is for more established departments, "disciplinary" and "preprofessional" alike, to rethink the ends of education and assert their own accountability for forms of learning that prepare students to navigate a kaleidoscopically complex world.[14] In some fields, broadening the recommended course of study to include larger societal perspectives and issues will require challenging and uprooting the encrusted educational assumptions of professional accrediting associations. In other fields, the accrediting associations are already broadening their expectations for student learning in ways highly congruent with the emerging pattern we observed above.

THE DISTINCTION BETWEEN GENERAL EDUCATION AND THE MAJOR

As long as general education was conceived predominantly as study of a range of subject matters, or "breadth," with study in a designated major representing "depth," the conventional sharp division between general education and majors made some sense. But with the new educational focus on helping students develop intellectual skills, understand a range of epistemologies and their various strengths and limitations, and increasing their ability to negotiate intellectual, cultural, civic, and practical topics and relationships, the assumed separation between general education and the major is no longer useful. On the one hand, that fraction of the curriculum allocated to general education is simply inadequate for developing, practicing, and integrating, at a reasonable level of proficiency, the complex forms of learning important to a contemporary liberal education. On the other hand, the development of those skills and awareness we characterized above as the new framework for liberal learning is just as much the business of the major and just as essential to a baccalaureate level of mastery in a field as it is to general education.

In other words, the logic of this emerging pattern of undergraduate education should lead to thinking about that education as a whole, an education in communication, in analytic, critical and scientific thinking, in societal perspective and responsibility, and in learning to frame and deal with unstructured problems of many sorts. The major, as a large portion of that education, provides an appropriate level of mastery of these skills in relation to a specific area of inquiry and interest. It gives students a sense of both the power and the limitations of particular forms of "disciplined" thinking.

Goals for learning in the major, then, ought to deal at a high level of intentionality with the development of general and integrative as well as field-specific understandings, perspectives, and skills. This blending of general skills with field-specific approaches can already be seen in the frequently encountered "writing across the curriculum" programs and a few similar efforts focused on relating other general skills, such as oral communication, quantitative reasoning, and second languages, to study in the major. Many departments are introducing diversity content and practices into departmental curricula in ways appropriate to specific fields. Others are starting to emphasize issues of social responsibility and global engagement. But such efforts remain for the most part sporadic and elective. The argument here is for far greater departmental intentionality that is systematic and developmental.

The advantage to major programs in assuming this kind of instructional responsibility for students' integrative learning is a greater share of the attention of their students. The price is much clearer formulation of the purposes of the major and a willingness to teach with an inten-

tionality that thoughtfully addresses the goals of the department and of the college, not just those of the individual faculty member.

COURSES AND CREDITS

The dysfunctional dichotomy between general and specialized education is discernibly beginning to erode. The challenge, to which we return later, is to replace it with an educationally viable alternative. But another familiar structure, the system of courses and credit hours, remains as strongly in place as ever. This usage of the word "course," a shortening of the phrase "course of lectures," traces its origin to the very beginnings of universities, when students registered and paid for a particular number of lectures by one of the learned men who "professed" at a particular place and time. In American higher education, beginning in the early part of this century, the course became standardized in terms of credit hours or some easily translatable equivalent. The modal course, as all know, is three credit hours, which is defined as a set number of periods in the classroom. All sorts of modifications or equivalents are possible, but the three-credit course is the standard coin of the realm.

The assumed separation between general education and the major is no longer useful.

Equally standard, despite many familiar variants, is the notion of a bachelor's degree as the equivalent of four years of undergraduate study, defined as 40 three-credit courses or 120 credit hours. There is no particular reason why a bachelor's degree should take four years of full-time study, arbitrarily defined as five three-credit courses per semester, to complete. Nor is there any particular reason why all bachelor's degrees should take the same amount of time to complete or why students in some programs should complete "free electives" to fill out the 120 credits, or why some programs, notably engineering, should try to squeeze themselves into the canonical 120 hours.

This standard for the degree emerged early in the twentieth century as a counterweight to diploma mills and other sorts of ventures that awarded bachelor's degrees on the basis of little or no effort by the recipients of the diploma. The notion of the credit hour was born of the same impulse. Moreover, to an extent probably unforeseen by its inventors, the credit hour, by becoming the standard unit of academic currency, has made possible the American system of student transfer. In fact, transfer has become so pervasive that at many public institutions, both two- and four-year, the transfer process controls the academic program.

As convenient as this standardization is, it has led to some—to say the least—questionable results. Some have become so familiar that their dubiousness seldom occurs to us. For example,

instructors have grown used to allowing the size of the package to control the level of treatment of the subject matter. No matter that some topics might benefit from being taught over a longer period while others do not seem, proportionately, to deserve a full course: all must fill precisely the same numbers of class hours and semester or quarter time.

This uniform and separate packaging of learning experiences has led to both faculty and students treating courses in isolation from each other. Very seldom, unless courses are explicitly part of a sequence of two or three, do instructors make an effort to relate one course to another, either in terms of the content addressed or of the analytical tasks and challenges assigned to students.

These problems, however, pale in contrast to the damage done by allowing course titles and credits to stand as surrogates for learning. The establishment of modular and interchangeable course units has led everywhere to a stunning neglect of what a student is supposed to be able to *do* at the completion of any particular course, and of how capacities fostered in any particular course do or should prepare students for the work yet to come. The result, as many faculty members pioneering with capstone courses and/or portfolios of student work well know, is that significant numbers of students ascend to the final year of study with analytical, problem-solving and communicative competencies that are at best only shallowly developed.

CREDIT TRANSFER PRACTICES

The problematic equation of course title with learning becomes even more counterproductive in the context of student transfer, an increasingly common practice throughout public systems of higher education. The system of student transfer is built on the assumption that courses with equivalent titles and credits represent the same learning experience—of content and developed competence—at all institutions. The flip side of this assumption is that courses differently titled and with different but equally valid learning experiences are not accepted in transfer, a practice that enrages transfer students, community colleges, and state legislatures alike. The illogic of both aspects of this practice is patent.

State coordinating boards and, increasingly and notoriously, state legislatures have sometimes responded by establishing a standard set of general education courses for all public institutions which, once completed, must be accepted by the receiving institution in satisfaction of all lower division general education requirements. The package is frequently a thoroughly retrograde system of distribution requirements in their least intellectually defensible form. This lowest-common-denominator standardization certainly helps reduce barriers to transfer, but it also

results in widespread student cynicism about the curriculum, while imposing a severe restriction on the curricular and pedagogical imagination and experimentalism of faculties at both two- and four-year institutions.

THE UNDEFINED BACCALAUREATE DEGREE

The ultimate problem with this uniquely American system of courses and credits is the way it is used to define the baccalaureate degree. By allowing course credits to stand as a surrogate for learning, we have allowed ourselves to shirk the responsibility of developing a rigorous definition of what the baccalaureate degree should mean.

This is another way of saying that the academy is still insufficiently focused on attending to the kinds of educational outcomes it is trying to achieve. Progress over the last decade notwithstanding, colleges and universities have a long way to go in developing operational frameworks for expected outcomes, let alone in finding adequate ways of assessing students' achievement of them. Even though hundreds of campuses have developed statements about important goals for student learning, these statements are too frequently couched as goals for the fraction of the curriculum devoted to general education. Only in a handful of instances are such goals presented as charges to the departments as well. Having assigned most of the important educational goals we noted above to a fraction of the curriculum, often on a principle of one or two courses per goal, faculty assessment committees then struggle unsuccessfully to figure out some way of assessing these general education outcomes "across-the-curriculum." As a result, it is increasingly common for campuses to present satisfaction surveys as evidence that they are meeting their stated general education goals. In the absence of meaningful and operational expectations for baccalaureate-level student learning, the academy still has a long way to go in developing practicable assessments of student performance that are credible to faculty, students and the wider public.

Statements about important goals for student learning are too frequently couched as goals for the fraction of the curriculum devoted to general education.

In the meantime, increasing numbers of institutions refer to the notable example of Alverno College, send teams of faculty members and administrators to their summer workshops, but finally do little to emulate that institution's thorough system of learning assessments across the *entire* curriculum. The example is there; Alverno and a handful of other campuses have pioneered in showing that educational goals *can* guide the curriculum, that assessment can be done well, and that the combination of assessment and students' own self-assessments can be a powerful spur to demonstrable learning. Why have so few other institutions developed the will to develop their own student performance expectations and assessments?

THE FACULTY REWARD QUESTION

Over all this need for rethinking inherited structures and practices hangs the universal question of how faculty members will be rewarded for the considerable efforts required to change educational programs. Exhortations abound about the compelling need to change campus reward structures so that curriculum and teaching innovations are duly recognized and faculty can devote the time those efforts require without fear of jeopardizing promotions and salaries. Administrators and sometimes even faculty leaders offer much encouragement to embark on educational renewal, but so far faculties as a whole do not believe them. They have heard too many horror stories about colleagues who spent a great deal of time on teaching innovation and curricular reform, only to have it discounted, by either colleagues or administrators, when it came time for promotion or merit increases. In general, neither institutions nor faculty members are willing to disarm unilaterally by honoring teaching and service efforts equally with research accomplishments. With the exception of two-year institutions and a fair number of local and regional liberal arts colleges, the prestige and rewards in higher education continue to lie with published research.

Curricular and pedagogical reforms are widely viewed as not only desirable but necessary to sustain the viability of our colleges and universities in a context of technological revolution and multiplying educational purveyors. But it will be difficult if not impossible to implement curricular and pedagogical change systematically unless it becomes the norm for institutions of all kinds to recognize and honor the intellectual work involved. Faculties will need to know that time spent on creative and successful innovation in curriculum and teaching will be as well rewarded as equivalent time spent on research. Since much of this work is cross-disciplinary and integrative, departments and colleges will necessarily have to develop new abilities to recognize and assess efforts that go beyond their traditional scope of concern.

In short, the dominance of disciplinary rhetoric and organization in curricular structure, the courses-and-credits system of academic bookkeeping, and the atomism of faculty reward practices all stand as formidable impediments to the educational renewal that many campuses are working hard to advance. The perfectly reasonable desire to sustain curricular flexibility and choice and to facilitate institutional transfer for students serves to keep a number of the more questionable structures in place, indeed to entrench them even more solidly.

Part III: The Future of Educational Community: Beginning to Move from Here to There

THESE TIMEWORN STRUCTURES AND SYSTEMS clearly are not total impediments to reform. We could not talk as we have about emerging new patterns of thinking about and structuring baccalaureate education and the development of concomitant teaching and learning strategies if they were not in fact present and thriving in enough places to attract attention. Whether or not they are involved in such practices, most faculty members are familiar with concepts of experiential and service learning, collaborative and cooperative learning, learning communities, capstone courses and projects, and performance assessments. It is not the concepts and practices that the academy needs, but a practical consensus about the purposes of baccalaureate education that will encompass and accommodate them.

An emerging framework for such consensus exists in the pattern that provided the starting point for this discussion. This pattern emphasizes a range of intellectual skills, epistemological and research sophistication, global, societal and self knowledge, relational learning and making intellectual connections. It requires seeing undergraduate education as a whole as opposed to splitting it between general and specialized learning. It also argues strongly for aligning the goals and emphases of K-12 education more intentionally and developmentally with those of the bachelor's degree.

This emerging direction for undergraduate learning is particularly well served by instructional strategies that reflect the resurgent emphasis on the student as learner, with the teacher serving as mentor rather than sage. Developing problem solving skills, both as an individual and in collaboration with others, is essential to this pattern. So is experiential learning in its many forms. Institutions' choices of educational technologies ought to reflect this learning-centered, intensively "hands-on" approach.

CONNECTING EDUCATIONAL GOALS AND INSTITUTIONAL PRACTICES

The next step is a thorough elaboration of this new pattern with a parallel embodiment of it in a variety of four-year undergraduate program models purposely directed toward the goals it implies. Those models should not be reorganizations of existing individual courses but integrated structures of carefully related learning experiences that pay systematic attention to developmental sequencing and concomitant teaching strategies. For a variety of practical reasons the curricula may need to be presented in the standard form of semesters and courses and credits, but the rationale for and the practice of instruction ought to become far less atomistic than current practice.

To fully meet the challenges of this new educational intentionality, faculty members will have to give up some old habits of thinking about their courses, most significantly the idea that they are sole *owners* of the courses they teach. Offering their courses within integrated, intentional sequences will require them to acknowledge the stake that their departments and the institution as a whole have in each course *and* in the student outcomes it is intended to produce. They will have to accept the need to teach toward some goals to which there has been mutual agreement and around which there is some sense of collective accountability. This need not mean what faculty most fear, externally imposed constraints on the actual content of a course. But it should mean that designated categories of courses work intentionally and accountably, through the kinds of assignments students undertake, to foster specific capacities and intellectual skills. Models for this combination of flexibility and focus already exist in some departments and at some institutions. The challenge is to build on available examples.[1]

Given the transience of students, particularly within state systems of higher education or regions within those systems, some broad agreements within the higher education community about educational goals and what they mean operationally also will be important. If the emphasis is on particular student outcomes rather than completion of specified sets of courses, faculties within groups of institutions among which students regularly move ought to negotiate some common understandings about what those goals represent. These understandings should not simply be imparted to students. They need to become a continuing framework for students' educational planning, assessments, and self-assessment.

The difficulty of articulating important educational goals across institutions and getting faculty to acknowledge them in what and how they teach, while maintaining a high level of institutional and faculty autonomy, is not to be underestimated. Such coordination requires enormous amounts of educational insight, negotiating skill, and good will. Yet making sense of edu-

cation for the large numbers of students who increasingly move from institution to institution, and for whom a coherent, purposeful curriculum can never be predesigned at a single campus, would seem to require the effort.

This emphasis on student outcomes rather than course credits and curricular structures also means more widespread and extensive assessment. The assessment will be more appropriate and effective if it is embedded in course work or grows naturally out of it, rather than taking the form of short-answer instruments created solely for the purpose of external reporting. Ideally assessment should provide opportunities for students to advance, integrate and correct their understandings at key junctures in their course of study. Assessments which provide no useful or developmental feedback to students themselves defeat what should be an important goal of the assessment effort.

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A NEW CURRICULAR ARCHITECTURE

It is also time to think differently about the overall pattern of an undergraduate education. For the most part, the academy continues to think in terms of between one and two years devoted to general education and the underpinnings of an area of concentration, followed by two years of intensive study in the major. The program is perhaps topped off by a summative experience in the major or, more rarely, in general education.

Under the emerging pattern, campuses might build on available models for a "first year experience," integrated programs designed to develop in novice learners the intellectual skills and habits of critical thinking appropriate to collegiate study.[9] In first-year programs intentionally designed to orient students toward high standards for college learning, students would explore a range of fields and approaches to knowledge, take core courses that introduce them to the contours and sources of the contemporary world, and spend accredited time exploring with others the challenges that college does and should present to their preconceived assumptions and interpretive frameworks. They would be introduced, perhaps through deliberately linked courses, to the theory and practice of integrative learning. This first year would not be defined as "getting requirements out of the way." Rather, it would self-consciously address—and assess students' progress with—the entire framework of educational goals we noted in the first part of this paper. Whatever their selections of course content, students would expect to work on writing, quantitative analysis, a second language and other proficiencies with the expectation that they would use all these skills repeatedly throughout their studies and their lives. In exploring

the approaches to knowledge characteristic of different fields, they would begin a discussion about the sources and warrants for knowledge that also would be continued throughout their studies and beyond. Courses on the contours and sources of the contemporary world would introduce topics, e.g., globalization, pluralism, democratic aspirations, and equity issues that also would routinely reappear when students move on to more advanced studies. All students coming to an institution for the first time—whether as first year matriculants or transfer students—would also engage in structured educational planning and self-assessment, processes fully informed by feedback on their strengths and needs as evidenced in previous work and attainment.

Should students enter at an advanced level, thanks to Advanced Placement or other accelerated high school studies, they would not be exempted from the topics important to the first-year program. Rather, they would engage these topics—proficiencies, epistemological and research frameworks, societal and global knowledge, self-knowledge—at the more advanced levels for which they have qualified.

Assuming that we are still talking about four years of baccalaureate education, the next two years can then be devoted to developing and strengthening significant skills, inquiry capacities, societal perspectives and self -knowledge within the context of a selected concentration. This concentration would be conceived, however, as a matrix rather than a silo.[1] Whether their chosen field is (traditionally) defined as "disciplinary," or "interdisciplinary," students would be expected to bring more than one methodological approach to a sufficient level of competence that they could use these approaches in framing and studying complex problems. Thus prepared, they would take topically linked courses and seminars that explore challenging, open-ended, debatable issues. Some, even much of this learning might occur on-line. But the centerpiece of any learning activity would always be the student's own active involvement and work, both individual and collaborative. No one would imagine that experiencing a series of lectures, reading (part of) a textbook, and taking midterm and final examinations, whether face-to-face or on-line, constitutes a sufficiently challenging course of study. Every course would expect significant and extended analytical and/or applied work on the part of each participating student. Every concentration would foster students' capacities to address values questions and to engage widely diverse perspectives.

Within the context of this concentration, most students would have field experiences related to their interests. Whatever the forms of the field experience—a research project, an internship, work-related activity, service learning, study abroad—each student would be expected to devote

curricular time to formal reflection on the learning from the experience, and to connecting experiential with academic understandings and analyses.

The final year would be devoted to the student's integrating learning in a variety of modes in such a way as to demonstrate appropriate achievement of specified outcomes, including competence in integrative learning itself. This culminating work might take the form of a complex project, or might be presented as a portfolio demonstrating different kinds of advanced work. As part of these culminating exercises, students would be expected to address societal, global, diversity, and ethical questions related to their subject of interest. They also would be expected to demonstrate an advanced level of competence in such proficiencies as writing, quantitative analysis, computer literacy, a second language, and moral reasoning. And they would be expected to describe important themes in their educational maturation and journey. The form of these demonstrations would vary from student to student, and campus to campus. But all students, whatever their course of study, would be invited to make reflective learning and periodic self-assessment a continuing part of their preparation for lifelong learning.

The reconceptualization of higher education sketched here builds on and incorporates the most promising educational innovations of the past fifteen years. It advances the shift from teaching to learning—but more importantly, it defines *the kinds of learning* that prepare all students to learn, work and serve at high levels of responsibility and competence in a complex, rapidly reconfiguring world.

The direction defined here is not proposed *de novo*. Every element in it is already visible and viable across our educational horizons. What is new is the recognition that promising innovations can add up to a powerful redirection of the entire educational experience.

Moving forward with a framework for learning that expects broad, deep and complex accomplishments for every student is a challenge that invites the participation of the entire array of higher education stakeholders, from the public and their elected representatives to each individual institution, and including accreditors, state higher education agencies, university system offices, learned societies in the disciplines, testing agencies, federal education agencies and so on and on. The groundwork for success has already been laid in the form of an emerging consensus about what matters in undergraduate education and some promising pedagogical strategies for getting there. We need to seize the opportunity for building a more purposeful, powerful and integrative structure and practice for undergraduate education that the consensus can make possible.

Higher education is indeed in the midst of a period of great change. But the stampede can be organized.

Notes

1. The authors have worked directly with numerous campus-based initiatives sponsored by the Association of American Colleges and Universities to improve educational practice, including projects on renewing general education, re-forming and assessing college majors, incorporating global and United States diversity into the curriculum, and efforts to "teach science as science is done." Each also has served as a consultant to a long list of individual institutions engaged in rethinking graduation standards and changing general education programs. Robert Shoenberg has worked also with several educational initiatives sponsored by the American Council on Education. He has further served as an evaluator for the National Endowment for the Humanities of new core curricula and as a consultant to the United States Department of Education Fund for the Improvement of Postsecondary Education. This article therefore represents an analysis of the direction of change at several hundred separate colleges and universities, representing every category in the standard Carnegie classifications.

2. The *locus classicus* of this reconceptualization is Robert B. Barr and John Tagg, "From Teaching to Learning: A New Paradigm for Undergraduate Education," *Change* (November-December, 1995): 13-25.

3. A comprehensive overview of contemporary curricular themes and innovations is provided in *Handbook of the Undergraduate Curriculum: A Comprehensive Guide to Purposes, Structure, Practices, and Change*, ed. Jerry G. Gaff, James L. Ratcliff, and Associates. (San Francisco: Jossey-Bass Publishers, 1997). Additional information on general education reform can be found in *Strong Foundations: Twelve Principles for Effective General Education Programs.* (Washington, DC: The Association of American Colleges, 1994).

4. A window into shifting understandings of liberal education is provided in *Education and Democracy: Re-imagining Liberal Learning in America*, ed. Robert Orrill. (New York: College Entrance Examination Board, 1997). See also: Frank Wong, "The Search for American Liberal Education." *Rethinking Liberal Education.* (New York: Oxford University Press, 1996) and Bruce Kimball, *A History of the Idea of Liberal Education.* (New York: Teachers College Press, 1986).

5. Research on higher education curriculum and pedagogy almost uniformly suggests that colleges and universities generally fail to achieve their broadly stated goals and that our most common lecture-discussion teaching methods produce disappointing results in student learning. An excellent summary of this research and the conclusions to be drawn from it may be found in Lion F. Gardiner, *Redesigning Higher Education: Producing Dramatic Gains in Student Learning.* ASHE-ERIC Higher Education Report. (Washington, DC: The George Washington University, Graduate School of Education and Human Development, 23:7).

6. Elizabeth Minnich, *Liberal Learning and the Arts of Connection for the New Academy.* (Washington, DC: The Association of American Colleges and Universities, 1995). This report was written for AAC&U's national initiative American Commitments: Diversity, Democracy and Liberal Learning.

7. The concept of "relational learning" emerged through dialogue among members of the National Panel advising AAC&U's American Commitments initiative. It is explored at greater length by Lee Knefelkamp and Carol Schneider in "Education for a World Lived in Common with Others" in Orrill, ed., *op. cit.*, pp. 327-344.

8. Numerous examples of new core curricula and general education courses emphasizing cultural pluralism at home and abroad are provided in Betty Schmitz, *Core Curriculum and Cultural Pluralism: A Guide for Campus Planners*, (Washington, DC: The Association of American Colleges, 1992) and in Debra Humphreys, *General Education and American Commitments: A National Report on Diversity Courses and Requirements* (Washington, DC: The Association of American Colleges and Universities, 1997).

9. Maxine Greene, *The Dialectic of Freedom*, (New York: The Teachers College Press, 1988).

10. *The Challenge of Connecting Learning*, (Washington, DC: The Association of American Colleges, 1991), 15.

11. Ernest L. Boyer, College: *The Undergraduate Experience in America*, (New York: Harper and Row Publishers, 1987), pp. 110-111.

12. Lee S. Shulman, "Professing the Liberal Arts," in Orrill, *op. cit.*, pp. 151-174.

13. Alexander W. Astin, *What Matters in College?* (San Francisco: Jossey-Bass Publishers, 1993).

14. For a more extensive discussion of these issues, see Carol G. Schneider, "The Arts and Sciences Major," in Gaff, Ratcliff and Associates, *op cit.*, pp. 235-261.

15. *Ibid.* See also: *Changing the Major: Innovation Priorities in the Fields*, (Washington, DC: The Association of American Colleges, 1994).

16. John N. Gardner and Associates, *The Freshman Year Experience*, (San Francisco: Jossey-Bass, 1989).

17. *Challenge of Connecting Learning*, pp. 13-17 and *passim*. See also Carol G. Schneider, "Enculturation or Critical Engagement?" in *Strengthening the College Major*, ed. Carol G. Schneider and William S. Green, (San Francisco: Jossey-Bass Publishers [1993]: 84)43-56; and Elaine P. Maimon, Unlocking the Doors: From Separate to Connected Knowing," in Schneider and Green, *op. cit.*, pp. 89-101.

ABOUT AAC&U

AAC&U is the only institutional membership association in the United States committed to the best of undergraduate education, providing contemporary liberal learning for all students, regardless of academic specialization or intended career. Since its founding in 1915, AAC&U's membership has grown to nearly 700 accredited public and private colleges and universities of every type and size.

AAC&U functions as a catalyst and facilitator, forging links among presidents, administrators, and faculty members who are engaged in institutional and curricular planning. Its mission is to reinforce the collective commitment to liberal education at both the national and local level and to help individual institutions keep student learning at the core of their educational programs as they evolve to meet new economic and social challenges. In pursuit of that goal, AAC&U supports the development and expansion of campus leadership, the critical examination and analysis of curricular purposes and educational values, faculty development, and the extension of the benefits of liberal learning to all.

AAC&U STATEMENT ON LIBERAL LEARNING

AAC&U upholds liberal learning as the means of challenging all students to search out the complexities of self-governance, to see issues from contrasting perspectives, to value human and cultural diversity and the natural world, and to make informed choices. Liberal learning engaged in collectively cultivates social responsibility; this public benefit contributes to the renewal of social values in human organizations and to the sustaining of a productive, democratic, and pluralistic society.

Liberal learning, the continuing quest to discover what it means to be human, is pursued most productively through studies that challenge the learner to explore nature, culture, and society. Such learning requires a rich and substantial grounding in the liberal arts, including the humanities, the creative and performing arts, the natural and social sciences, and mathematics.

At its best, liberal learning also goes beyond particular subject matter, to call forth and develop essential qualities of mind—creativity and analytical ability, imagination and intellectual acuity. For the individual, liberal learning provides a foundation for continuing personal development and fulfillment, for adaptability and growth in meeting the changing demands of a career, and for the capacity and resolve to exercise civic responsibility and leadership. Furthermore, since liberal learning fulfills the most distinctive human capacity— the ability to know for the sake of knowing—it is also valuable as an end in itself.

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